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L2: Entry 1 of 5

File: USPT

Mar 12, 2002

US-PAT-NO: 6355271

DOCUMENT-IDENTIFIER: US 6355271 B1

TITLE: Therapeutic calcium phosphate particles and methods of manufacture and use

DATE-ISSUED: March 12, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bell; Steve J. D.	Marietta	GA		
Morco; Tulin	Decatur	GA		
He; Qing	Atlanta	GA		

US-CL-CURRENT: [424/489](#); [424/278.1](#), [424/491](#), [424/493](#), [424/499](#), [514/770](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC
Draw Desc	Image										

☐ 2. Document ID: US 6312467 B1

L2: Entry 2 of 5

File: USPT

Nov 6, 2001

US-PAT-NO: 6312467

DOCUMENT-IDENTIFIER: US 6312467 B1

TITLE: Method of restructuring bone

DATE-ISSUED: November 6, 2001

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
McGee; Thomas D.	Ames	IA		

US-CL-CURRENT: [623/16.11](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC
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☐ 3. Document ID: US 6183515 B1

L2: Entry 3 of 5

File: USPT

Feb 6, 2001

US-PAT-NO: 6183515  
DOCUMENT-IDENTIFIER: US 6183515 B1

TITLE: Artificial bone implants

DATE-ISSUED: February 6, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Barlow; Joel W.	Austin	TX		
Lee; Goonhee	Austin	TX		
Crawford; Richard H.	Austin	TX		
Beaman; Joseph J.	Austin	TX		
Marcus; Harris L.	Austin	TX		
Lagow; Richard J.	Austin	TX		

US-CL-CURRENT: 623/16.11; 264/497, 264/628, 264/632

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWMC
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☐ 4. Document ID: US 5814550 A

L2: Entry 4 of 5

File: USPT

Sep 29, 1998

US-PAT-NO: 5814550  
DOCUMENT-IDENTIFIER: US 5814550 A

TITLE: Colloidal silica films for cell culture

DATE-ISSUED: September 29, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Wolcott; Christine C.	Horseheads	NY		

US-CL-CURRENT: 435/402; 435/289.1, 435/305.1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWMC
Draw Desc	Image										

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☐ 5. Document ID: US 5639402 A

L2: Entry 5 of 5

File: USPT

Jun 17, 1997

US-PAT-NO: 5639402  
DOCUMENT-IDENTIFIER: US 5639402 A

TITLE: Method for fabricating artificial bone implant green parts

DATE-ISSUED: June 17, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Barlow; Joel W.	Austin	TX	78731	
Lee; Goonhee	Austin	TX	78703	
Crawford; Richard H.	Austin	TX	78733	
Beaman; Joseph J.	Austin	TX	78733	
Marcus; Harris L.	Austin	TX	78733	
Lagow; Richard J.	Austin	TX	78733	

US-CL-CURRENT: 264/6; 264/430, 264/434, 264/482, 264/497

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KINC
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surface.

Detailed Description Paragraph Right (33):

In a more particular embodiment, the composition of the present invention comprising a calcium phosphate core at least partially coated with polyethylene glycol and human insulin may be administered to diabetic patients as an aerosol of the dried particles, or as an aerosol of a solution of the particles in a carrier liquid, such as water. The particular insulin dose delivered corresponds to that given intravenously and by other methods, and the dose of particulate insulin given is determined based on the blood glucose levels and supplied dosages of particles in the rat model described herein. Without wishing to be bound to the following dosage ranges, average daily doses of about 0.5 to about 2.0 mg are believed to be appropriate to generate a therapeutic effect in humans.

Detailed Description Paragraph Right (48):

For the washed calcium phosphate particles+antigen, 10 .mu.g of antigen was coated onto 1.0 mg of calcium phosphate particles, and after washing with PBS, centrifugation, precipitation, and resuspension (three times) was injected i.p. ("Washed CAP-TB").

Detailed Description Paragraph Right (49):

For the unwashed calcium phosphate particles+antigen, 10 .mu.g of antigen was coated on 1.0 mg calcium phosphate particles and administered i.p., without further treatment ("Unwashed CAP-TB").

Detailed Description Paragraph Right (54):

50 mL of calcium phosphate suspension prepared as described in Example 1 and coated with cellobiose glue as described in Example 3 were centrifuged at 4500 rpm for 15 minutes at 25.degree. C., and the supernatant discharged. The pellet was resuspended in 2.5 mL of spent buffer from the production of the calcium phosphate particles, so that the calcium phosphate concentration was increased 20 fold. The concentrated calcium phosphate was divided into 1 mL aliquots. 1 mL of HSV protein was added to the concentrated calcium phosphate suspension and rotated for 1 hour at 4.degree. C. One aliquot of this suspension was not washed (UWCCH). The other was washed with PBS (and centrifuged at 4500 rpm for 15 minutes at 4.degree. C.) three times and resuspended in 2 mL PBS (WCCH solution).

Other Reference Publication (10):

Collins et al., "Processing of exogenous liposome-encapsulated antigens in vivo generates class I MCH-restricted T cell responses," J. Immunol., 148(11): 3336-3341 (1992).

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Mar 12, 2002

DOCUMENT-IDENTIFIER: US 6355271 B1

TITLE: Therapeutic calcium phosphate particles and methods of manufacture and use

Brief Summary Paragraph Right (15):

Various routes of administration have been found to be suitable for vaccination using polynucleotide vaccines. Intramuscular administration is thought to be particularly desirable, given the proportionally large muscle mass and its direct accessibility through the skin. See U.S. Pat. No. 5,580,859. Tang et al., (Nature, 356, 152-154 (1992)) disclosed that introduction of gold microprojectiles coated with DNA encoding bovine growth hormone (BGH) into the skin of mice resulted in production of anti-BGH antibodies in the mice. Furth et al., (Analytical Biochemistry, 205, 365-368, (1992)) showed that a jet injector could be used to transfect skin, muscle, fat, and mammary tissues of living animals. WO 93/17706 describes a vaccination method wherein carrier particles are coated with a gene construct and then accelerated into a potential host. Intravenous injection of a DNA:cationic liposome complex in mice has also been reported (Zhu et al., Science 261, 209-211 (Jul. 9, 1993); see also WO 93/24640). Methods for introducing nucleic acids have been reviewed (Friedman, T., Science, 244, 1275-1281 (1989)), see also Robinson et al., (Abstracts of Papers Presented at the 1992 meeting on Modern Approaches to New Vaccines, Including Prevention of AIDS, Cold Spring Harbor, p 92; Vaccine 11, 957 (1993)), where the intra-muscular, intra-venous, and intra-peritoneal administration of avian influenza DNA into chickens was alleged to have provided protection against lethal challenge.

Brief Summary Paragraph Right (24):

The present invention also relates to the novel calcium phosphate core particles having a material coated on the surface of the core particles, and/or dispersed or impregnated within the core particles, to methods of making them, and to methods of using them. Non-limiting examples of a suitable material to be at least partially coated on the surface of the core particle or impregnated therein include one or more of the following: antigenic material, natural immunoenhancing factors, polynucleotide material encoding immunogenic polypeptides, or therapeutic proteins or peptides.

Drawing Description Paragraph Right (12):

FIG. 12 is a schematic drawing showing a calcium phosphate core particle (4) both coated with antigenic material or natural immunoenhancing factor (8) and having antigenic material or natural immunoenhancing factor (8) impregnated therein.

Drawing Description Paragraph Right (13):

FIG. 13 is a series of schematic drawings showing embodiments having a calcium phosphate core particle (4) coated with material (6), such as antigenic material, natural immunoenhancing factors, polynucleotide material encoding immunogenic polypeptides, or therapeutic proteins or peptides, or having material (6) impregnated therein. FIG. 13A shows a core particle coated directly with material (6). FIG. 13B shows a core particle (4) coated with surface modifying agent (2), such as polyethylene glycol or cellobiose, and a having a material (6) adhered to the surface modifying agent (2). FIG. 13C shows a calcium phosphate core particle (4) having a surface modifying agent (2), such as polyethylene glycol or cellobiose incorporated therein and having a material (6) at least partially coating core particle (4).

Drawing Description Paragraph Right (15):

FIG. 15 is a graph showing blood glucose levels over time before and after administration of a calcium phosphate core particle having insulin coated on the